

## Claims

1. Data recording device comprising micro-tips (3) and a recording medium (2) comprising a substrate (4) whereon there is arranged a resistive layer (5), said resistive layer (5) being covered by an active layer (6) able to switch from a first electrical resistivity value to a second electrical resistivity value due to the action of a voltage applied between the micro-tips (3) and a counter-electrode, device characterized in that at least one resistive element (7) made of carbon is arranged between the active layer (6) and the micro-tips (3), the resistive element (7) having a controlled electrical resistivity comprised between the first and second electrical resistivity values of the active layer (6).
2. Recording device according to claim 1, characterized in that the resistive layer (5) is made of carbon.
3. Recording device according to one of the claims 1 and 2, characterized in that the resistive element (7) comprises doping elements designed to adjust the electrical resistivity of the resistive element (7), the doping elements being chosen from boron and phosphorous.
4. Recording device according to any one of the claims 1 to 3, characterized in that the resistive element (7) has a thickness of about 1nm.
5. Recording device according to any one of the claims 1 to 4, characterized in that the resistive element (7) is a layer arranged on the active layer (6).
6. Recording device according to any one of the claims 1 to 5, characterized in that the resistive layer (5) has an electrical resistivity comprised between the first and second electrical resistivity values of the active layer (6).

7. Recording device according to any one of the claims 1 to 6, characterized in that the resistive layer (5) has a thickness comprised between 5 and 50nm.
- 5 8. Recording device according to any one of the claims 1 to 7, characterized in that the resistive layer (5) comprises doping elements designed to adjust the electrical resistivity of the resistive layer (5), the doping elements being chosen from boron, phosphorous, silver and copper.
- 10 9. Recording device according to any one of the claims 1 to 8, characterized in that it comprises a protective layer (9) of carbon arranged on the resistive element (7).
- 15 10. Recording device according to any one of the claims 1 to 9, characterized in that it comprises a thermally insulating layer (8) arranged between the substrate (4) and the resistive layer (5).
11. Recording device according to claim 10, characterized in that the thermally insulating layer (8) is formed by a crystallized germanium, antimony and tellurium compound.
- 20 12. Recording device according to claim 11, characterized in that the crystallized germanium, antimony and tellurium compound is obtained by momentary heating of the partially achieved recording medium (2).
- 25 13. Recording device according to claim 11, characterized in that the crystallized germanium, antimony and tellurium compound is obtained from a binary germanium and tellurium compound.
14. Recording device according to any one of the claims 1 to 13, characterized in that the active layer (6) is formed by a phase change material.
- 30 15. Recording device according to any one of the claims 1 to 14, characterized in that the active layer (6) has a thickness smaller than or equal to 50nm.

**16.** Recording device according to any one of the claims 1 to 15, characterized in that the substrate (4) being conducting, it constitutes the counter-electrode.

**5    17.** Recording device according to claim 16, characterized in that the substrate (4) is made of doped silicon.